EFFECT OF PHYSICAL ACTIVITY AND RECREATIONAL GAMES ON THE SELECTED PHYSIOLOGICAL AND PSYCHOLOGICAL VARIABLES OF THE HABITANTS OF OLD AGE HOME

SHORT SYNOPSIS

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Certificate

I hereby declare that the short synopsis **"Effect Of Physical Activity And Recreational Games On The Selected Physiological And Psychological Variables Of The Habitants Of Old Age Home"** being submitted in partial fulfillment of the requirement for the degree of Doctor of Philosophy in physical education under the department of physical education pedagogy of lakshmibai national institute of physical education, Gwalior during the academic year 2022.

It is a bonafide record of original work carried out under the supervision of Dr. Rahul Kanojiya and has not been submitted in full or part to any other university or institute for a degree or diploma. Further, it is certified that the short synopsis is plagiarism-free, and the proof has been submitted.

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Abstract

This study investigates the impact of recreational games and physical activity on physiological and psychological variables in older adult females residing in Narayan Vridhashram, Gwalior. The research aims to explore the effectiveness of a structured 12-week program in enhancing the overall well-being of older adults. Thirty female participants aged 60-80 years will be recruited for the study. The intervention will comprise a combination of physical activity and recreational games designed to promote physical and mental health.

Physiological variables, including vital capacity, blood pressure, and blood glucose, will be assessed using standardized measures. Psychological variables, such as quality of life, happiness, and insomnia, will be evaluated using validated questionnaires. Data collection will occur at two time points: pre-intervention and post-intervention.

Descriptive statistics and paired sample t-tests will be employed to analyze the data and examine the effectiveness of the intervention. The expected outcomes of this study may demonstrate significant improvements in physiological and psychological variables after the intervention, contributing to enhanced quality of life and healthy aging among older adults.

The findings of this study can inform strategies to promote healthy aging, reduce the risk of age-related health problems, and improve the overall well-being of older adults. By exploring the impact of recreational games and physical activity, this study can provide valuable insights into effective interventions that can be implemented in old age homes and community settings. Ultimately, the study's results can contribute to the development of evidence-based programs and policies that support the health and well-being of older adults.

Keywords: Recreational Games, Physical Activity, Physiological Variables, Psychological Variables.

INTRODUCTION

The global demographic shift towards an aging population has underscored the importance of enhancing the quality of life for elderly individuals, particularly those residing in old age homes.

Numerous physical, psychological, and social changes will take place as people age. Particularly during this time, many older people have a significant reduction in physical function as a result of biological aging and increased susceptibility to diseases in comparison to younger age groups(Kim et al., 2020)

Chronological aging, also known as senescence, is linked to a higher risk of chronic conditions and diseases, including cognitive decline, cardiovascular disease, and metabolic syndrome. With life expectancy rising, the prevalence of age-related diseases has surged dramatically in recent decades. A growing collection of research indicates that lifestyle choices greatly influence the quality of aging(Bherer et al., 2013). The mental health of an aging population is becoming increasingly important. Traditional family support systems are changing, leading to potential loneliness and decreased well-being. Leisure activities can play a significant role in improving mental health, fostering social connections, and increasing overall life satisfaction for older adults(Zhang et al., 2021).

In the Indian context, elderly individuals residing in both rural and urban areas often engage in leisure activities that are deeply rooted in cultural and social traditions. Common pursuits such as walking, participating in religious ceremonies, visiting friends and relatives, gardening, listening to music, and caring for grandchildren are prevalent among the senior population. These activities not only provide physical movement but also foster social interaction and mental stimulation. Studies have indicated a positive correlation between regular participation in such leisure activities and improved health outcomes among the elderly. Engaging in these culturally relevant activities contributes to better physical health, enhances mental well-being, and promotes a sense of purpose and community belonging. This underscores the importance of integrating traditional leisure practices into programs aimed at improving the quality of life for older adults in India(Badami & Yenagi, 2015)

Regular physical activity is recommended by the World Health Organization to enhance balance, prevent falls, strengthen muscles, and promote psychophysical well-being. Studies have shown that physical activity and recreational games can have numerous benefits for older adults, including improved cardiovascular health, reduced blood pressure, and enhanced functional capacity. Research has also highlighted the positive impact of physical activity on psychological well-being, including enhanced quality of life, reduced symptoms of insomnia, and increased happiness.

Statement Of The Problem

Given the benefits of physical activity and recreational games, this study aims to investigate their effect on selected physiological and psychological variables among elderly women residing in Narayan Vridhashram, Gwalior.

Hypothesis

H_1- It has been hypothesized that physical activity and recreational games have a significant effect on vital capacity

H_2 – It has been hypothesized that physical activity and recreational games have a significant effect on blood pressure

H_3 - It has been hypothesized that physical activity and recreational games have a significant effect on blood glucose

H_4 - It has been hypothesized that physical activity and recreational games have a significant effect on quality of life

H_5 - It has been hypothesized that physical activity and recreational games have a significant effect on Insomnia

H_6 - It has been hypothesized that physical activity and recreational games have a significant effect on happiness

Delimitations

1. The study is delimited to old age women residing in Narayan Vridhashram, Gwalior.

2. The study is delimited to old age women aged 60-80 years.

3. The study focuses on specific physiological (vital capacity, blood pressure, and blood glucose) and psychological variables (happiness, quality of life, and insomnia).

4. The intervention period will be 12-weeks months.

Limitations

1. The participant's dietary habits are not under the researcher's control.

2. The quality of care and amenities provided by an old-age home can influence the outcomes of the study.

Significance Of The Study

1. The study's findings can contribute to improving the quality of life for older adults by identifying effective interventions that promote physical and mental well-being.

2. By examining the effects of recreational games and physical activity, the study can inform strategies to promote healthy aging and reduce the risk of age-related health problems.
3. The study's findings can inform policies and practices in old age homes, enabling them to provide more effective and engaging activities for residents.

4. The study can provide evidence-based insights for healthcare professionals, caregivers, and policymakers to develop targeted interventions and programs that support the health and well-being of older adults.

5. The study's focus on recreational games can provide insights into the potential cognitive benefits of such activities for older adults.

6. By promoting physical and mental well-being, the study's interventions can potentially reduce healthcare costs associated with age-related health problems.

Definition And Explanation Of Key Terms

Recreation – Recreation refers to any activities that individuals engage in to revitalize their bodies and minds while also making their free time more interesting and pleasurable (EdD et al., 2022).

Physical activity - Physical activity is defined as any bodily movement produced by skeletal muscles that results in energy expenditure (Westerterp, 2013).

Vital capacity (VC) - Vital capacity is defined as the maximal volume of air that can be exhaled from the lungs following a maximal inspiration (Tow et al., 2001).

Blood pressure - Arterial pressure is determined by the volume ejected by the heart into the arteries, the elastance of the walls of the arteries, and the rate at which the blood flows out of the arteries(Magder, 2018).

Quality of life - according to the World Health Organization (WHOQOL)- is the way individuals perceive their lives within the culture and value system they live in, within the framework of goals, expectations, and standards, and how they feel themselves physically, psychologically, and socially (Başaran et al., 2021).

Happiness - The (net) happiness (or welfare) of an individual is the excess of her positive affective feelings over negative ones(Ng, 2022).

Insomnia - Insomnia is broadly defined as dissatisfaction with sleep, either qualitatively or quantitatively. This is usually associated with one or more of the following: (1) difficulty initiating sleep, (2) difficulty maintaining sleep, characterized by frequent awakenings or problems returning to sleep after awakenings, and (3) early-morning awakening with inability to return to sleep (Patel et al., 2018).

Blood pressure - Arterial pressure is determined by the volume ejected by the heart into the arteries, the elastance of the walls of the arteries, and the rate at which the blood flows out of the arteries(Magder, 2018).

REVIEW OF RELATED LITERATURE

(Hollmann et al., 2007) Functional aging is marked by a decline in abilities related to coordination, flexibility, strength, speed, and endurance. The primary focus is on how aging impacts the cardiovascular system and skeletal muscles. Starting at age 30, the peak capacity for aerobic physical performance drops by roughly 8% every decade. This decline is primarily due to a decrease in maximum cardiac output, as well as reductions in capillarization and skeletal muscle mass. Research shows that untrained men between the ages of 55 and 70 can enhance their maximum oxygen intake by 18% and improve their aerobic-anaerobic threshold by 22% through a 12-week bicycle ergometer training program. The strength of skeletal muscles particularly diminishes after the age of 50 or 60, largely because of the loss of motor units and muscle fibers. Additionally, changes in endothelial function and the onset of sarcopenia play significant roles in the aging process. Engaging in general aerobic training can bolster endothelial function in older individuals, thereby helping to stave off cardiovascular issues. On the other hand, strength training is most effective in preventing sarcopenia. Over the past two decades, imaging technologies have unveiled new insights into how physical activity impacts the brain. This emerging field is known as ‘Exercise Neuroscience’. Activities that enhance coordination and aerobic endurance are helpful in combating age-related loss of neurons, reductions in synapse size, and fostering neurogenesis and capillarization. Therefore, tailored physical activity can mitigate agerelated transformations and declines in performance not only in the cardiovascular system but also within the brain.

(Badami & Yenagi, 2015) In this study, a total of forty-five elderly individuals, both male and female, from rural and urban areas aged between 60 to 74, 75 to 84, and 85 and older were randomly chosen from Dharwad Taluka. The information was gathered using exploratory methods and personal interviews. They were all asked to fill out a questionnaire that contained supplementary demographic information, including personal information. An ageing scale helped assess the participants' health conditions and their leisure activities, while a socio-economic status scale was utilized to evaluate the family's SES. A non-parametric test was carried out

to explore the relationship between health status, leisure activities, and the independent variables. A correlational research design was applied to determine the connection between health status and leisure activities among the elderly in both rural and urban settings. The findings revealed that 58. 50 percent of the rural elderly were categorized under lower middle SES, while 47. 40 percent of their urban counterparts fell into the upper middle SES category. In terms of health issues, most elderly individuals reported no significant health problems, with the following percentages: tremors (83. 1%), asthma (79. 4%), heart issues (79. 1%), constipation (77. 7%), headaches (76. 3%), heel pain (74. 4%), skin itching (71. 8%), poor hearing (67. 4%), reproductive problems (67. 2%), acidity (64. 8%), nerve issues (64. 3%), uncontrollable bladder (52. 4%), diabetes (46. 3%), and back pain (43%). A notable association between health status and gender was identified among the rural elderly; however, no significant association was observed in the urban elderly group. Most elderly individuals in the 60-74 age bracket reported good health. A significant relationship between health status and age was found in rural elderly, while it was non-significant for the urban elderly. A majority of them indicated regular participation in leisure activities such as walking (76. 7%), engaging in religious activities (75. 2%), visiting friends (70. 2%), sleeping (63. 3%), watching television (63%), gardening (60. 9%), listening to music (57. 6%), taking care of their grandchildren (40. 6%), reading (32. 4%), playing sports or games (20. 6%), working part-time or full-time (18. 1%), and joining community organizations. The results indicated a positive and significant correlation between health status and leisure activities among the elderly (r=0.33), suggesting that increased involvement in leisure activities correlates with better health outcomes.

(Li & Li, 2017) This research looked at how a cultural recreation program affected people with dementia. The program was tailored to fit the participants' cultural backgrounds. The study involved 48 people, split into an experimental group and a control group. The experimental group participated in folk activities, including art, music, and games, for 40 to 50 minutes, three times a week for 16 weeks. The control group received regular care. To measure changes in cognitive abilities, daily living skills, and behavior, the study used the MMSE, Barthel Index, and CNPI before and after 16 weeks. The experimental group showed a significant improvement in MMSE and BI scores.

(Sala et al., 2019) According to this study, Seniors who participate in leisure activities have been shown to benefit greatly. Engaging in such activities is thought to support effective aging by helping older persons maintain their mental, physical, and cognitive abilities. Structural equation modeling (SEM) was applied to examine how leisure activities affected these components in a large sample of older Japanese individuals (N = 809; ages 72–74). Participating in leisure activities was positively correlated with all three effective aging measures, and the model showed a strong fit (CFI = 1). These results supported earlier studies conducted in

Western nations and broadened their applicability to the Eastern older adult population. These findings, however, are correlational, imply that active participation in leisure activities can support the maintenance of mental, physical, and cognitive health in older persons.

(Kim et al., 2020) This study merged existing research on the effects of therapeutic recreation programs for elderly Koreans to assess both the mean effect size and the factors that influence these effect sizes. Research on senior care programs between 2000 and 2018 was combined with findings from other studies. A total of 15 articles were chosen for the meta-analysis. The data was examined using the Comprehensive Meta-Analysis 2.0 software. Initially, the overall mean effect size of the therapeutic recreation programs for older adults was found to be 0. 644, indicating a medium effect. Additionally, when looking at specific dependent variables, the mean effect size for the social emotional domain was 0. 739, for the physical domain it was 0. 548, and for the cognitive domain it stood at 0. 485. Furthermore, the key factors impacting the effectiveness of these therapeutic recreation programs for the elderly were determined to be the duration of the program and the number of hours per session. The findings from this study demonstrate that therapeutic recreation programs can effectively lead to positive outcomes for older adults, highlighting the importance of program duration and session length in their design.

(Başaran et al., 2021) Recreational activities can improve enjoyment and quality of life, especially for elderly individuals. This study looked at how these activities affect the quality of life for 60 seniors living at the Darulaceze institution. Participants were divided into two groups, each with 30 individuals, and engaged in activities twice a week for 12 weeks. The study used a pretest and posttest design and gathered data through surveys. Statistical tests were applied to the results. The findings showed a significant improvement in psychological health and the environment for those in the activity group, as well as some improvements for the control group. Overall, participating in recreational activities helped enhance the quality of life for older adults, leading to a more fulfilling life.

(Col et al.,2022) This article focuses on the experiences of Senior Games participants who have been in a specific state and how these experiences affect their overall health. 444 North Carolina residents aged 55 and above were surveyed in 2006 through a random sampling method. A Reasons for Participating (RFP) scale was created, and various behaviors and demographic data were examined. Among the factors listed in the RFP were physical health, social relationships, and internal benefits. It was determined that the participants were twice as physically active as other seniors across the state. In addition, there were significant demographic differences in motivations and health perceptions among the participants. The findings demonstrate that a

community recreation program that runs year-round can be instrumental in keeping older people active and engaged with friends and family.

Objective Of The Study

1. To investigate the effect of physical activity and recreational games on physiological variables (vital capacity, blood pressure, blood glucose) in older adult females.

2. To evaluate the effect of physical activity and recreational games on the psychological variables (quality of life, happiness, insomnia) among older adult females.

3. To determine the effectiveness of a 12-week program of physical activity and recreational games in improving physiological and psychological variables among older adult females.

RESEARCH METHODOLOGY

The following research methodology has been planned for the proposed study.

Selection Of The Subject

The subjects for this study will be selected from Narayan Vridhashram, Gwalior. The selection process involved identifying and recruiting 30 female old age habitants who met the inclusion criteria for the study.

Inclusion Criteria

1. Female old age habitants aged 60-80 years.
2. Ability to participate in physical activity and recreational games.
3. Willingness to provide informed consent.

Exclusion Criteria

1. Old age habitants with severe medical conditions that may contraindicate physical activity.
2. Those who are unable to provide informed consent

Selection Of Variables

Dependent Variables

Physiological Variables

1. Vital capacity
2. Blood Pressure
3. Blood glucose

Psychological Variables

1. Quality of life
2. Happiness
3. Insomnia

Independent Variables

1. Physical activity
2. Recreational games

S/No	**VARIABLE**	**TOOL**
1.	**Physiological Variable**	
	1. Vital capacity	Spirometer
	2. Blood Pressure	Sphygmomanometer
	3. Blood glucose	Glucometer
2.	**Psychological Variable**	
	1. Happiness	Oxford Happiness Questionnaire (OHQ)
	2. Insomnia	Insomnia Severity Index (ISI)
	3. Quality of life	Older People's Quality Of Life (OPQOL)

Administration of the Test and Collection of Data

The administration of tests for this study will involve the use of standardized measures to assess physiological and psychological variables. Physiological variables, including vital capacity, blood pressure, and blood glucose, were measured using a spirometer, sphygmomanometer, and glucometer, respectively. Participants will perform a forced expiratory maneuver to assess vital capacity, be seated with their arm at rest for blood pressure measurement, and will be provided a blood sample after an overnight fast for blood glucose measurement. Psychological variables, including happiness, quality of life, and insomnia, will be assessed using standardized questionnaires. The Oxford Happiness Questionnaire (OHQ) will be used to measure overall happiness and well-being, the Older People's Quality Of Life (OPQOL) questionnaire will be used to measure overall quality of life, and the Insomnia Severity Index (ISI) will be used to measure sleep quality and duration.

The intervention consisted of recreational games and physical activity, which will be administered for a specified duration and frequency over a period of 12 weeks. The testing procedure involved pre-intervention and post-intervention assessments, where participants will undergo physiological and psychological assessments before and after completing the 12-week intervention. Data will be collected using standardized measures and procedures to ensure reliability, validity, and relevance to the research objectives.

Statistical Technique

The collected data will be analyzed using descriptive statistics to calculate the mean and standard deviation for all variables at both pre-test and post-test stages. To examine the effectiveness of the intervention within the single group, a Paired Sample t-test will be employed, as it is appropriate for comparing two related measurements taken from the same subjects. Before applying the t-test, the assumption of normality will be tested using the Shapiro-Wilk test. If the data violates the assumption of normality, the Wilcoxon Signed-Rank Test, a non-parametric alternative, will be used to assess the difference between pre- and post-test scores. The level of significance will be set at $p < 0.05$, and all statistical analyses will be conducted using IBM SPSS (Version 26).

Expected Outcomes Of The Research

The results may show significant changes in physiological and psychological variables after the intervention of physical activity and recreational games.

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